Listing of Claims:

1. (Currently Amended) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator disposed on said optical path such that the pulse laser beam passes therethrough, and preset to provide said pulse laser beam with a certain amount of pre-chirp compensation, said pre-chirp compensator comprising optical elements which cause components of the pulse laser beam to be emitted in order of wavelength such that shorter wavelengths are emitted earlier than longer wavelengths;

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, <u>the objective lenses including objective lenses having different optical path lengths,</u>

a revolver for switching the objective lenses, and

a correcting mechanism for correcting an optical path length of said optical path so as to be constant no matter which of said objective lenses is selectively placed on said optical path,

wherein said correcting mechanism comprises at least one flat optical correcting element adapted to be selectively ~~placed on~~ inserted in said optical path in accordance with which of said objective lenses is selectively placed on said optical path, so as to maintain the optical path length of the optical system without moving said optical elements of said pre-chirp compensator, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

2. (Previously Presented) The microscope according to claim 1, further comprising an interlocking mechanism for causing operation of said correcting mechanism to be interlocked with switchover of said objective lenses.

3. (Previously Presented) The microscope according to claim 1, wherein said at least one optical correcting element is adapted to be arranged on said optical path at a position where said pulse laser beam forms a parallel luminous flux and there is no change in an angle of said luminous flux.

Claim 4 (Canceled).

5. (Previously Presented) The microscope according to claim 1, wherein said correcting mechanism includes a rotor supporting said at least one optical correcting element.

6. (Previously Presented) The microscope according to claim 1, wherein said correcting mechanism includes a slider supporting said at least one optical correcting element.

7. (Previously Presented) The microscope according to claim 1, wherein said at least one optical correcting element and said objective lenses are supported by a same supporting member and are moved together.

Claims 8 and 9 (Canceled).

10. (Previously Presented) The microscope according to claim 1, wherein said optical system further comprises a scanning mechanism for scanning said sample to be observed with said pulse laser beam.

11. (Previously Presented) The microscope according to claim 10, wherein said scanning mechanism comprises a scanning optical unit for moving said pulse laser beam, and wherein said at least one optical correcting element is adapted to be arranged on said optical path at a position between said scanning optical unit and said pre-chirp compensator.

12. (Previously Presented) The microscope according to claim 1, wherein said optical system also forms an optical path for guiding said fluorescent light to said detector.

13. (Previously Presented) The microscope according to claim 1, further comprising an additional optical system and detector for detecting light of the pulse laser beam that is transmitted through the sample.

14. (Currently Amended) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator disposed on said optical path such that the pulse laser beam passes therethrough, and preset to provide said pulse laser beam with a certain amount of pre-chirp compensation, said pre-chirp compensator comprising optical elements which cause components of the pulse laser beam to be emitted in order of wavelength such that shorter wavelengths are emitted earlier than longer wavelengths,

an optical member adapted to be selectively placed on said optical path, the optical member including a plurality of members having different optical path lengths, and

a correcting mechanism for correcting an optical path length of said optical path so as to be constant,

wherein said correcting mechanism comprises at least one flat optical correcting element adapted to be selectively ~~placed on~~ inserted in said optical path in accordance with selective placement of said optical member, so as to maintain the

optical path length of the optical system without moving said optical elements of said pre-chirp compensator, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

15. (Previously Presented) The microscope according to claim 14, wherein said optical member comprises a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample.

16. (Currently Amended) The microscope according to claim 14, wherein said optical member comprises a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, and said optical member includes said correcting mechanism, which is ~~a flat optical element~~ adapted to be selectively inserted between said pre-chirp compensator and said objective lenses.

17. (Previously Presented) The microscope according to claim 16, wherein said optical element comprises a Nomarski prism.

18. (Currently Amended) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator disposed on said optical path such that the pulse laser beam passes therethrough, and preset to provide said pulse laser beam with a certain amount of pre-chirp compensation, said pre-chirp compensator comprising optical elements which cause components of the pulse laser beam to be emitted in order of wavelength such that shorter wavelengths are emitted earlier than longer wavelengths,

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse

laser beam on the sample, the objective lenses including objective lenses having different optical path lengths,

a revolver for switching the objective lenses, and

a correcting mechanism for causing an optical path length of said optical path to be constant no matter which of said objective lenses is selectively placed on said optical path,

wherein said correcting mechanism comprises ~~an optical correcting element~~ a parallel plain plate whose optical path length is adjustable by applying different voltages in accordance with which of said objective lenses is selectively placed on said optical path, so as to maintain the optical path length of the optical system without moving said optical elements of said pre-chirp compensator, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

19. (Currently Amended) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator disposed on said optical path such that the pulse laser beam passes therethrough, and preset to provide said pulse laser beam with a certain amount of pre-chirp compensation, said pre-chirp compensator comprising optical elements which cause components of the pulse laser beam to be emitted in order of wavelength such that shorter wavelengths are emitted earlier than longer wavelengths,

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, the objective lenses including objective lenses having different optical path lengths,

a revolver for switching the objective lenses, and

a correcting mechanism for causing an optical path length of said optical path to be constant no matter which of said objective lenses is selectively placed on said optical path,

wherein said correcting mechanism comprises ~~an optical correcting element~~ a parallel plain plate whose optical path

length is adjustable by applying different pressures in accordance with which of said objective lenses is selectively placed on said optical path, so as to maintain the optical path length of the optical system without moving said optical element of said pre-chirp compensator, and

wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser beam passes through said optical path whose optical path length is kept constant.

20. (Currently Amended) A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including:

a pre-chirp compensator disposed on said optical path such that the pulse laser beam passes therethrough, and preset to

provide said pulse laser beam with a certain amount of pre-chirp compensation, said pre-chirp compensator comprising optical elements which cause components of the pulse laser beam to be emitted in order of wavelength such that shorter wavelengths are emitted earlier than longer wavelengths,

a plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the sample, the objective lenses including objective lenses having different optical path lengths, and

a correcting mechanism including at least one flat plate optical element adapted to be detachably inserted into the optical path of said optical system, so as to cancel change in an optical path length of said optical system caused by replacement of the objective lenses having different optical path lengths.

~~a revolver for switching the objective lenses, and~~

~~a correcting mechanism for causing an optical path length of said optical path to be constant no matter which of said objective lenses is selectively placed on said optical path, and~~

~~wherein said certain amount of pre-chirp compensation provided by said pre-chirp compensator is set to prevent a pulse width of said pulse laser beam from widening due to a wavelength range of a pulse of said pulse laser beam when said pulse laser~~

~~beam passes through said optical path whose optical path length is kept constant.~~

21. (Previously Presented) The microscope according to claim 1, wherein said at least one optical correcting element comprises a plurality of optical correcting elements, and said plurality of optical correcting elements are adapted to be selectively placed on said optical path in accordance with which of said objective lenses is selectively placed on said optical path in a one-to-one corresponding relationship.